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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/735,061	12/11/2003	Wing K. Luk	YOR920030136US1 (8728-621)	1252
46069 7590 04/24/2007 F. CHAU & ASSOCIATES, LLC 130 WOODBURY ROAD WOODBURY, NY 11797			EXAMINER BERNSTEIN, ALLISON	
			ART UNIT 2824	PAPER NUMBER

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/24/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/735,061

Applicant(s)

LUK ET AL.

Examiner

Allison Bernstein

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 February 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-33 and 54-57 is/are pending in the application.
- 4a) Of the above claim(s) 11-33 and 54-57 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☒ Other: Search History.

### **DETAILED ACTION**

Acknowledgment is made of applicant's amendment, filed on 16 February 2007. The changes and remarks disclosed therein have been considered.

Claims 1-33 and 54-57 are pending in the application. Claims 1-4, 6, 10, 11, 14, 16, 17, and 26 are currently amended. Claims 34-53 have been cancelled. Claims 11-33 and 54-57 are withdrawn from further consideration. Claims 54-57 are new. Claims 1 and 56 are independent claims.

### ***Election/Restrictions***

Newly submitted claims 54-57 directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: Claims 54-57 pertain to a device comprising a gated diode that is a two terminal active device and a threshold voltage of the gated diode.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 54-57 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Regarding applicant's remarks, filed 16 February 2007 about the Election/Restriction requirement, dated 7 July 2006, the examiner acknowledges that claim 1 is generic to withdrawn claims 11-33 and 54-55.

This application contains claims 11-33 and 54-57 drawn to an invention nonelected with traverse in the reply filed on 9 August 2006. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. **Claims 1-10** are rejected under 35 U.S.C. 102(e) as being anticipated by Hsu (US 2003/0147277).

3. **Regarding claim 1**, Hsu discloses, in figure 4, a gated diode memory cell comprising: at least one transistor (for example 210); and a gated diode (for example 220) having a first terminal in signal communication with the at least one transistor and a second terminal in signal communication with a wordline (for example WL<sub>0</sub>).

4. **Regarding claim 2**, Hsu discloses, in figure 4, a gated diode memory cell as defined in Claim 1 wherein the first terminal of the gated diode (for example 220) forms

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one terminal of a storage cell and the second terminal of the gated diode (for example 220) forms another terminal of the storage cell [0033].

5. **Regarding claim 3**, Hsu discloses, in figures 4 and 9A-9D, a gated diode memory cell as defined in Claim 2 wherein the first terminal is a gate (for example 906A in figure 9D) of the gated diode (for example 220), wherein the gate is implemented in the form of a shallow trench (see also abstract and [0064]).

6. **Regarding claim 4**, Hsu discloses, in figures 4 and 9A-9D, a gated diode memory cell as defined in Claim 3, wherein the gate (for example 906A in figure 9D) of the gated diode (for example 220) comprises a poly trench (906A in figure 9D) surrounded by thin oxide (905B) with silicon (for example 913) disposed underneath and surrounding the thin oxide (905B) (see also [0069]).

7. **Regarding claim 5**, Hsu discloses, in figures 4 and 9A-9D, a gated diode memory cell as defined in Claim 4 wherein the poly trench (906A) is cylindrical (see figures 9A-9D).

8. **Regarding claim 6**, Hsu discloses, in figures 4 and 9A-9D, a gated diode memory cell as defined in claim 4 wherein the gate (for example 906A in figure 9D) of the gated diode (for example 220) comprises a metal oxide semiconductor ("MOS") capacitor ([0064] and [0033]).

9. **Regarding claim 7**, Hsu discloses, in figures 4 and 3A-3B, a gated diode memory cell as defined in Claim 2 wherein the gate (216) of the gated diode (for example 220) is planar (see figure 3A).

10. **Regarding claim 8**, Hsu discloses, in figures 4 and 3A-3B, a gated diode memory cell as defined in Claim 7 wherein the gate (216) of the gated diode (for example 220) is disposed above a diffusion area (below 215 in figure 3A).

11. **Regarding claim 9**, Hsu discloses, in figures 4 and 3A-3B, a gated diode memory cell as defined in Claim 8, further comprising an oxide layer (215) disposed between the gate (216) of the gated diode (220) and the diffusion area (below 215).

12. **Regarding claim 10**, Hsu discloses, in figures 4 and 3A-3B, a gated diode memory cell as defined in Claim 7, wherein the gated diode (220) comprises a planar metal oxide semiconductor ("MOS") capacitor [0033].

### ***Response to Arguments***

13. Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

When responding to this office action, applicants are advised to provide the examiner with the line numbers and page numbers in the application and/or references cited to assist the examiner in locating appropriate paragraphs.

A shortened statutory period for response to this action is set to expire three months and zero days from the date of this letter. Failure to respond within the period for response will cause this application to become abandoned (see MPEP 710.02(b)).

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allison Bernstein whose telephone number is 571-272-9011. The examiner can normally be reached on Monday-Friday 7AM-4PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Elms can be reached on 571-272-1869. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

APB

  
ANH PHUNG  
PRIMARY EXAMINER